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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,788	09/28/2001	Thomas Bartz	IN-12093	5467

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EXAMINER

BISSETT, MELANIE D

ART UNIT

PAPER NUMBER

1711

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6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/937,788 Examiner Melanie D. Bissett	ART UNIT 1711	

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-5 and 7-10 is/are rejected.
- 7) Claim(s) 6 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) Interview Summary (PTO-413) Paper No(s) _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. Claims 3, 5, and 7-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 3 recites the limitation "(e)" in line 2. There is insufficient antecedent basis for this limitation in the claim. Likewise, claim 5 also recites "(e)" in line 3. There is insufficient antecedent basis for this limitation in the claim. For the purpose of this Office action, it is the examiner's position to treat the claims as referring to component (f), optional auxiliaries and additives.
4. Claims 7-10 are rejected as being dependent from rejected claims 3 or 5 for the reasons cited above in paragraph 3.
5. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the

remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 9 recites the broad recitation "from 40 to 98% by weight", and the claim also recites "preferably from 50 to 80% by weight" which is the narrower statement of the range/limitation. Similar statements occur in line 3 of (b1) "preferably from 2.5 to 3", line 1 of (b2) "preferably from 10 to 25%", line 3 of (b2) "preferably from 2.5 to 3", line 1 of (b3) "preferably from 10 to 25%", and line 3 of (b3) "preferably from 4 to 10".

Summary of the Claims

6. Claim 1 is drawn to a composite element comprising a layer of 2-20 mm of metal, a layer of 10-300 mm of a reaction product of isocyanate with isocyanate-reactive component in the presence of a specified amount of gas, and a layer of 2-20 mm of metal. Claim 7 is drawn to a process for forming the composite elements of one of claims 1-5 by preparing and reacting the isocyanate reaction product layer between the two metal layers. Claim 2 limits the gas, claims 3 and 5 limit optional component (f), claims 4 and 9 limit the isocyanate-reactive component, and claim 6 limits the properties of the isocyanate reaction product layer. Claim 10 is drawn to a composite element obtained by the process of claim 7.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-5, 7-8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wells in view of Kennedy.

9. Wells discloses polyurethane foams containing hollow glass spheres (abstract) that have excellent adhesion to contaminated metal substrates (col. 2 lines 6-23) and can be used in ship hull applications (col. 13 lines 24-26). The polyurethanes are formed by reacting polyisocyanates with polyols, including polyether polyols (col. 3 lines 33-54; col. 4 lines 23-29). Foam stabilizers are suggested (col. 3 lines 5-12). Also, the hollow glass sphere fillers are noted to be present in an amount of about 5-30% by weight of the foam (col. 5 lines 58-63). Wells teaches a method of placing steel panels into a mold having a space between the panels, casting the reaction mixture into the space, and allowing the mixture to foam between the metal substrates (col. 13 lines 47-68). The steel panels have a thickness of 0.035" (0.9 mm), where the sandwich structure results in a thickness of 1" (25 mm), leaving a foam thickness of ~23 mm (col. 14 lines 19-64). However, the reference does not teach using metal plates of the applicant's claimed thicknesses and does not specify the amount of gas by volume present in the reaction mixture.

Art Unit: 1711

10. Kennedy teaches a composite structure for double ship hulls having an elastomer layer injected between two metal plates (abstract). The metal layers have thicknesses of 3.5-25 mm, and the elastomer layer has a thickness of 20-100 mm (col. 2 lines 39-56). Kennedy suggests that 3.5 mm is the thinnest sheet that can be butt-welded and that properties do not increase at metal thicknesses above 25 mm. The thickness of the metal affects the strength of the metal, where one of skill in the art would recognize that thicker sheets are heavier and use more material. It is the examiner's position that it would have been *prima facie* obvious to use metal sheet thicknesses of Kennedy's teaching in the composite structures for Wells' ship hulls to improve strength of the composites while balancing cost and weight.

11. Although Wells does not specify the amount of gas present in the reaction mixture as a function of weight, the reference does discuss a weight range of blowing agent to be employed, also indicating a range of foam density (col. 11 line 66-col. 12 line 5). Water and hydrocarbons are noted as blowing agents. It is noted that water reacts to form a gas during the polyurethane and foam formation. Thus, when water is used, the reaction occurs in the presence of a gas. It is also noted that the claim does not limit the present "at least one gas" to be a blowing agent. Thus, any small amounts of air present, because the reaction does not take place in a completely closed system, would read on the applicant's claimed present gas. It is the examiner's position that it would have been *prima facie* obvious to use any volume of gas in the reaction mixture sufficient to provide a desired foam density.

12. Although Wells teaches placing steel panels into a mold before injecting the foam mixture (col. 13 lines 47-68), the reference does not specify a closed mold. Kennedy teaches injecting a material into closed molds having air vents for allowing air escape to form ship hull structures having minimal void spaces (col. 5 line 17-col. 6 line 35). It is the examiner's position that it would have been *prima facie* obvious to provide a closed mold for the reaction of Wells' composite structures to prevent the formation of void spaces in the composite.

Allowable Subject Matter

13. Claim 6 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. Claim 9 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

15. The following is a statement of reasons for the indication of allowable subject matter:

16. The closest prior art, Wells (USPN 3,993,608-A), discloses polyurethane foams containing hollow glass spheres that have excellent adhesion to contaminated metal substrates and can be used in ship hull applications. The reference shows a composite structure having outer metal plates and an inner polyurethane foam layer. However, the reference does not teach the applicant's claimed properties or the applicant's claimed

polyether polyol mixture. It is the examiner's position that the applicant's claimed composite structure and method for forming the composite structure having the specified properties or polyether polyol mixture would be novel and unobvious over the prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (703) 308-6539. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (703) 308-2462. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

mdb
December 27, 2002



James J. Seidleck
Supervisory Patent Examiner
Technology Center 1700